3. The system of claim 1 wherein the devices further comprise a battery for supplying power to the low power transceiver.

4. The system of claim 1 wherein at least one of the devices is selected from the group consisting of sensors, actuators and controllers.

5. The system of claim 1 wherein one of the routers is hardwired to a device which generates high bandwidth information.

6. The system of claim 1 wherein the controller is coupled between a telephone wiring network in a structure and external telephone lines.

7. The system of claim 6 and wherein the controller is capable of intercepting touch tones transmitted on the telephone wiring network in the structure and interpreting them as controller commands.

8. The system of claim 7 wherein the controller transmits information via the routers to devices in accordance with the touch tone commands.

9. The system of claim 1 wherein the controller further comprises circuitry to receive transmissions representative of controller commands from a wireless telephone.

Sub B3 (Once Amended) A monitoring system comprising:

a plurality of devices, each device having a low power battery operated transceiver that communicates information over a short range, provided by the device;

a router having a transceiver that receives communications from at least one selected device and transmits further communications via a higher power transceiver to other routers; and

a controller communicatively coupled to a router.

A2

11. The system of claim 10 wherein the low power transceiver has a lower data bandwidth capability than the bandwidth of the communication between routers.

12. The system of claim 10 wherein at least one of the devices is selected from the group consisting of sensors, actuators and controllers.

13. The system of claim 10 wherein one of the routers is hardwired to a device which generates high bandwidth information.

14. The system of claim 10 wherein the controller is coupled between a telephone wiring network in a structure and external telephone lines.

15. The system of claim 14 and wherein the controller is capable of intercepting touch tones transmitted on the telephone wiring network in the structure and interpreting them as controller commands.

16. The system of claim 15 wherein the controller transmits information via the routers to the device in accordance with the touch tone commands.

17. The system of claim 10 wherein the controller further comprises circuitry to receive transmissions representative of controller commands from a wireless telephone.

26. A network of router nodes communicatively coupled to a central controller of a security monitoring system, the network comprising:

a first router node hardwired into the central controller;

a second router node having a first receiver for receiving low power transmissions of physical condition related information from a plurality of devices located proximate the second router node, a second receiver for receiving high bandwidth transmissions from other routers in the system, and a first transmitter coupled to the first and second

receivers that transmits information from the plurality of devices at a relatively high power to the first router node.

27. The network of claim 26 and further comprising a plurality of further router nodes located proximate to a further plurality of devices transmitting at low power.

28. The network of claim 27 wherein at least some of the plurality of further router nodes transmit information from the proximate devices to the first router node.

30. A router node in a physical condition monitoring system, the router node comprising:

a first transceiver that receives low power transmissions of information from a plurality of devices located proximate the router node; and

a second transceiver that receives high bandwidth transmissions from other routers in the system, wherein the second transceiver further transmits information from the plurality of devices at a higher power level than the received low power transmissions.

31. The router node of claim 30 wherein the second transceiver operates at an unlicensed spread spectrum frequency range.

32. The router node of claim 31 wherein the frequency range is selected from the group consisting of 900 MHZ, 2.4 GHz, and 5.8 GHz.

33. The router node of claim 30 and further comprising a device which is hardwired directly to the router node for direct communication of high bandwidth information.

34. The router node of claim 33, wherein the hardwired device comprises a video camera.

35. The router node of claim 34, wherein the router node transmits high bandwidth compressed video to other routers at the higher power level

39. (New) A system comprising:

a plurality of means for transmitting information at a low power and receiving information;

a plurality of means for being located proximate to and receiving device information from one or more of the means for transmitting information at a lower power and for wireless communication at a higher power level with other such means; and

means for controlling the plurality of means for being located proximate to and receiving device information.

40. (New) A system comprising:

a plurality of devices, each device coupled to a low power transceiver that transmits over a short range at frequencies which are not licensed, and receives information, devices having a sleep mode wherein the device is unpowered for significant periods of time, and wherein events sensed cause the devices to wake up;

a plurality of router nodes having spread spectrum signal processors, each router node having a transceiver capable of receiving device information from one or more proximate wireless devices and capable of wireless communication at a higher power level with other router nodes, the router nodes placed to provide complete coverage for reception of device transmissions; and

a controller coupled to at least one router node for receiving device information, wherein the router nodes transmit device information either to the controller or to another router for further transmission of the device information.

Remarks

Claims 1-17, 26-28, and 30-35 were provisionally elected without traverse in response to a restriction requirement. That election is confirmed. The other claims will

cancelled upon receipt of a notice of allowance, and applicant reserves the right to continue prosecution of such claims in divisional and continuation applications.

The present invention describes the use of first tier node devices, which are battery powered and communicate using a low power, short range, transceiver operating at unlicensed frequencies such as approximately 300 or 433 MHz. Bidirectional communication is provided, and the power level is low for short range transmission. The low power levels limit the range of transmission, but also provide for extended battery life or the use of cheaper batteries. The transceiver is also very inexpensive and need not be optimized for longer transmission distances. The devices comprise standard home, small business, commercial and industrial sensors, identification tags and actuators such as motion detectors, glass breakage, pressure, temperature, humidity and carbon monoxide sensors, as well as motors and switches controlling automated systems, each equipped with a transceiver. The devices are placed throughout a structure or area to be monitored, protected or controlled. Combinations of security and control can easily be configured for a home or business in one embodiment of the system.

Since some structures or areas can be quite large, several second tier routers are provided such that at least one is within range of each device to receive its low power signals. The routers each have a higher power transceiver, and route the device signals through successive routers to the central controller, which also contains such a transceiver. Similarly, the central controller routes signals back through both tiers to each device for bidirectional communication.

Claims 1-3, 5-11, 13-17, 26-28 and 30-35 were rejected under 35 U.S.C. § 102(b) as being anticipated by LeBlanc et al. (US 5,960,341). Applicant does not admit that LeBlanc et al. is prior art and reserves the right to swear behind it at a later date. This rejection is respectfully traversed.

A rejection under § 102 requires that each and every element of the claim be clearly shown in the reference or be inherent therein. Claim 1 requires low power devices which are proximate to the second tier.

The first element: "a plurality of devices, each device coupled to a low power transceiver that transmits and receives information;" is not shown by LeBlanc et al.

LeBlanc et al. does not describe the use of low power devices as defined in the application. By using unlicensed frequencies for the low power devices, they may be used in buildings and other structures without concern for interfering with similar devices in other buildings. This is quite different than the cellular phones described in LeBlanc et al. and it's prior art section. The range of the cellular phones is described in terms of geographic areas 36 in col. 3, lines 8 - 12. To further reflect the differences, claim 1 has been amended to indicate that the devices have a "short range". (1)

The second element of claim 1 recites: "a plurality of router nodes, each router node having a transceiver capable of receiving device information from one or more proximate wireless devices and capable of wireless communication at a higher power level with other router nodes". This element further emphasizes that the range of the devices is short by use of the word "proximate." Thus, LeBlanc et al. is not analogous art, on top of not showing each and every element. It is meant for an entirely different problem than that faced by the present invention. The devices in the present invention are within or near a structure, and have short range to conserve power and to prevent interference with other devices in nearby structures. This very characteristic enables the devices to use frequency and power ranges that do not require licensing, as do the cellular phones of LeBlanc et al. (2)

With respect to the third element reciting the controller, the controller described in the application controls both the routing functions as well as functioning of the devices, as in typical process control environments. It also is quite different from what is termed a 'controller' in LeBlanc et al. by the rejection. (3)

As can be seen above, while the terms may be interpreted without resort to the application as similar to devices shown in LeBlanc et al., they are really quite different as described in the application. A further independent claim 39 using permitted means plus function language to invoke 37 C.F.R. 112(6) has been added. The 'means' elements quite clearly define over LeBlanc et al. since there is no mention of a cellular phone network in the present application. Further, the means elements also track claim 1, and clearly are defined differently than the corresponding elements in LeBlanc et al. which were identified in LeBlanc et al. A second independent claim 40 has been added, and

contains all the elements of claim 1, and further elements which are believed to even further distinguish the invention from the references cited herein.

Claims 2 - 3 and 5-9 include all of the elements of claim 1, and hence also distinguish LeBlanc et al. Further, each of the elements relate further to the use of controllers and date to control the devices. They are not limited to voice transceivers as are the cellular phones of LeBlanc et al.

Independent claim 10 also recites the same low power device in a similar manner to claim 1, and is therefore believed to distinguish from LeBlanc et al. It has also been amended to further clarify that low power is synonymous with "short range." It should be noted that the term "short range" is defined in the context of the power limits for current frequencies that do not require licensing. The range identified for current licensing limits is approximately three to six meters. It is anticipated that such range may change as licensing limits change.

Claims 11 and 13 depend from claim 10 and has all the elements thereof in addition to describing the differences in bandwidth between devices and routers.

Claims 14-17 recite elements that allow the controller to convert touch tone commands into signals to control the devices. This is clearly in the context of process control and even more clearly distinguishes LeBlanc et al. by providing functionality which is simply not present in the process control art. One example of the functionality would involve starting a motor.

Claims 26-28 also contain elements that are similar to those in claim 1, but do not positively recite the lower power devices. However, it does point out how one of the routers is directly hardwired into a central controller, and how other routers receive low power transmissions of physical conditions (very different than LeBlanc et al. which deals with phones, not physical conditions). Further, such received transmissions eminate from devices that are proximate in location. Proximate has been described in the application as drastically different than the "geographic" areas defined in LeBlanc et al. Thus, LeBlanc et la. clearly does not contain each and every element recited in independent claim 26 and its dependent claims 27 and 28.

Independent claim 30 also recites a router node using similar terminology as claim 26. "Low power transmissions" are received from "devices located proximate the router node". Dependent claims 31 and 32 further define how the elements solve the problem of using lower power to avoid the requirement that the devices be licensed. Claims 33-35 depend from claim 30 and distinguish LeBlanc et al. for at least the same reasons. Further, claims 34 and 35 refer to the hardwired device comprising a video camera, and the routing of compressed video signals. These elements were not addressed in the rejection. The rejection should be withdrawn.

Claims 4 and 12 were rejected under 35 U.S.C. § 103(a) as being anticipated by LeBlanc et al. (US 5,960,341) in view of Loosmore et al. (US 5,682,142). Applicant does not admit that LeBlanc et al. or Loosmore et al. are prior art and reserves the right to swear behind them at a later date. This rejection is respectfully traversed.

As described above, the independent claims clearly distinguish LeBlanc et al. As such, the combination of it with Loosmore et al., which describes moveable tag nodes monitored by fixed position nodes does not show each and every element of the claims. Furthermore, both LeBlanc et al. and Loosmore et al. are not analogous art to each other. They are both directed toward entirely different problems. LeBlanc et al. is related to cellular telephones, and the location of them for emergency services or other purposes. LeBlanc et al. addresses the problem of finding movable items or people to either find them, or limit access to sensitive areas. There is no suggestion that they can be combined. The suggestion referred to in the rejection is "in order to provide a faster input response in the communication system." There is no such desire expressed in the present application. The present application uses low power devices and provides a plurality of routers to communicate information from sensors, actuators and controllers as recited in claims 4 and 12. Neither of the references address this problem. Not only is there no suggestion to combine them, even if they were combined, they do not solve the problem solved by the present invention. It is respectfully requested that the rejection be withdrawn.

The referrences cited in the office action and not relied upon have been considered by Applicant and are not thought to affect the patentability of the claims.